

FIRST CHECKLIST OF LADYBIRDS (COLEOPTERA: COCCINELLIDAE) OF CROATIA ALONG WITH NEW FAUNISTICAL RECORDS

TONI KOREN¹, DINA HLAVATI², IVANA ROJKO² and MLADEN ZADRAVEC²

1 University of Primorska, Science and Research Center Koper, Institute for Biodiversity Studies,
Si-6000 Koper, Slovenia

E-mail: koren.toni1@gmail.com

2 Biology student association – "BIUS", Marulićev trg 20, 10 000 Zagreb, Croatia

Abstract

The ladybird fauna of Croatia is insufficiently known. New ladybird records collected during the last 4 years across Croatia are given. The first preliminary checklist of ladybirds of Croatia consisting of 78 species is presented.

KEY WORDS: Coccinellidae, Croatia, checklist, new records

Introduction

Ladybirds (Coccinellidae) are the largest family in the superfamily Cucujoidea, with about 6000 species described worldwide (IABLOKOFF-KHNZORIAN, 1982; VANDENBERG, 2002). In most cases they are small, usually not larger than 4-9 mm, or even as small as 1 mm (NOVAK, 1925). Most species prefer a certain type of food, as larva and also as adults, especially scale insects, aphids and other small soft-bodied creatures or their eggs (HODEK, 2012). Due to such a diet they have an important role in controlling the populations of many arthropod pests, particularly aphid species, and as such some species are considered extremely beneficial. In addition to predatory species of ladybirds, some species are phytophagous and feed on leaves of cultivated plant species (especially of the families Cucurbitaceae and Fabaceae) and are considered pests. Some species are mycophagous, feeding mainly on powdery mildew fungi. Ladybirds are also considered to be good indicator species because they are very sensitive to changes in the environment (IPERTI, 1999) and they can offer a better overall picture about the health of ecosystems.

The first entomologist who studied ladybirds in Croatia was SCHLOSSER (1879), who in his capital masterpiece listed 62 species, and gave the first, and to date the only, determination key for ladybirds written

in Croatia. After him MÜLLER (1901) and NOVAK (1952, 1964) thoroughly studied the ladybird fauna of Dalmatia and the Adriatic islands, and KOČA (1906) did the same in Slavonia. In the second half of the 20th century only a few entomologists published data about Coleoptera in Croatia, including ladybirds (KOŠČEC, 1975; MARCUZZI, 1985; DURBEŠIĆ *et al.*, 1995; VUJČIĆ-KARLO *et al.*, 1996; FEKETE & MERKL, 2010). The research into ladybirds was continued by JELOVČAN *et al.* (2007), who stated that the fauna of ladybirds of Croatia consisted of 73 species, but he did not present a checklist. Recently, an invasive ladybird species *Harmonia axyridis* (Pallas, 1773) was recorded in Croatia (MIČETIĆ STANKOVIĆ *et al.*, 2011). This species was introduced to Western Europe from East Asia for biological control of aphids and is now spreading throughout Europe. It preys on different arthropods, including small insects (KOCH, 2003) and even other ladybird species (ROY *et al.*, 2006). It is a voracious and aggressive predator and represents a major problem for biodiversity in the habitats it invades.

The Coccinellidae fauna of Croatia is insufficiently known, and no checklist exists. The goal of this paper is to contribute to the knowledge of diversity and distribution of ladybirds in Croatia as well as to present the first preliminary checklist of the species recorded until now in the territory of Croatia.

Material and Methods

Ladybird records presented in this paper were collected unsystematically during the last four years by the authors. They were collected during field trips conducted in different parts of Croatia, and in reality represent random findings, instead of systematic collecting. Beetles were collected in standard ways, including manual collecting, net sweeping and using light traps. Ladybirds were identified by using FÜRSCHE (1967) and by comparison with the museum collections of the Croatian Natural History Museum (CHNM), especially the Novak collection.

To gain a complete picture of the ladybird diversity in Croatia, all available literature was checked, and a database was created containing data from the published papers, as well as recent records. After processing, and elimination of synonyms, a checklist of ladybirds of Croatia was created. The system and nomenclature mostly follows the Web portal Fauna Europea (CANEPARI, 2011).

Results and Discussion

During this four-year survey, we collected more than 300 ladybird specimens, belonging to 23 species. For each record we added a label, containing information about the locality, collection date and collector. Only first records per locality were given. Also, remarks about some interesting species in Croatia are given.

Family Coccinellidae Latreille, 1807

Subfamily: Chilocorinae Mulsant, 1846

Tribus: Chilocorini Mulsant, 1846

Exochomus quadripustulatus (Linnaeus, 1758)

New records: Beram, 30.8.2007, leg. Koren; Rovinj, 24.5.2007, leg. Koren; Rudeš, 15.3.2008, leg. Koren; Zagreb, Sava, SD Stjepan Radić, 17.4.2008, leg. Koren; Zagreb, Tuškanac, 8.5.2008, leg. Koren.

Remarks: Feeds on coccids and aphids. This species is more common in the Mediterranean part of Croatia (SCHLOSSER, 1879; MÜLLER, 1901; GANGLBAUER, 1904; LIEBMANN, 1945; NOVAK, 1952, 1964) but was recorded also from Varaždin (KOŠČEC, 1975).

Chilocorus bipustulatus (Linnaeus, 1758)

New records: Kornat Island, Vruļje, 4.5.2009, leg. Koren.

Remarks: This predaceous insect is present only in the Mediterranean part of the country. It is less common than the previous species.

Subfamily: Coccinellinae Latreille, 1807

Tribus: Halyziini Mulsant, 1846

Halyzia sedecimguttata (Linnaeus, 1758)

New records: Paklenica, Veliki Štirovac, 1.6.2010, leg. Zadravec; Učka Vela, 22.6.2007, leg. Koren.

Remarks: The diet of this species consists mostly of mildew and small aphids. *H. sedecimguttata* is moderately rare in Croatia and was recorded only a couple of times. MÜLLER (1901) recorded it on Hvar and in Zadar. NOVAK (1952) reported it from Biokovo, Svilaja and Vrbanj. The only continental records originate from Varaždin (KOŠČEC, 1975) and Kamenica (SCHLOSSER, 1879). Our records indicate that the species prefers mountain habitats, and most literature records confirm this.

Vibidia duodecimguttata (Poda, 1761)

New records: Vela Traba, 22.8.2009, leg. Koren; Zagreb, Maksimir, 1.5.2007, leg. Koren; Zagreb, Rudeš, 10.5.2008, leg. Koren; Zagreb, Vugrovec, 24.5.2009, leg. Zadravec.

Remarks: Mycophagus. Common in the whole country.

Psyllobora vigintiduopunctata (Linnaeus, 1758)

New records: Manastir Krupa, 1.7.2010, leg. Koren; Vugrovec, Knežine, 25.7.2010, leg. Zadravec; Zagreb, Glavni kolodvor, 21.4.2010, leg. Zadravec & Hlavati; Zagreb, Maksimir, 17.6.2009, leg. Koren; Zagreb, Rudeš, 7.5.2007, leg. Koren; Žut island, 14.5.2009, leg. BIUS.

Remarks: Common. Present in the whole country. Mycophagus.

Tribus: Coccinellini Latreille, 1807

Propylea quatuordecimpunctata (Linnaeus, 1758)

New records: Beram, 19.4.2007, leg. Koren; Cerna, 26.4.2008, leg. Koren; Kamešnica, 24.5.2010, leg. Koren; Livno, 26.4.2008, leg. Koren; Zagreb, Adijina street, 30.4.2007, leg. Koren; Zagreb, Rudeš, 7.5.2007, leg. Koren; Zagreb, Sava, SD Stjepan Radić, 10.5.2008, leg. Koren; Zagreb, Savska Opatovina, 28.5.2010, leg. Zadravec; Zagreb, Vugrovec, 24.5.2009, leg. Zadravec; Zarečki krov, Pazin, 20.4.2007, leg. Koren.

Remarks: This predatory species is common in the whole country.

Adalia bipunctata (Linnaeus, 1758)

New records: Cerna, 26.4.2008, leg. Koren; Grdanjci, 10.7.2010, leg. Koren; Livno, 26.4.2008, leg. Koren; Okuje, Turopolje, 25.4.2009, leg. Koren; Pula, 24.5.2007, leg. Koren; Vela Traba, 17.7.2010, leg. Koren; Zagreb, Adijina street, 30.4.2008, leg. Koren; Zagreb, Rudeš, 27.4.2007, leg. Koren; Zagreb, Vugrovec, 24.5.2009, leg. Zadravec.

Remarks: This very common aphidophagous species is present in the whole country.

Adalia decempunctata (Linnaeus, 1758)

New records: Livno, 26.4.2008, leg. Koren; Ljubački Zaljev, close to river Jaruga, 1.7.2010, leg. Koren; Manastir Krupa, 1.7.2010, leg. Koren; Paklenica, Veliki Štirovac, 1.6.2010, leg. Zadravec; Rokina spilja, 24.5.2008, leg. Koren; Žut island, 16.5.2009, leg. Koren; Zagreb, Jezerska street, 27.5.2010, leg. Koren; Zagreb, Maksimir, 27.4.2007, leg. Koren; Zagreb, Rudeš, 5.6.2007, leg. Koren; Žut island, 14.5.2009, leg. Koren.

Remarks: This aphidophagous beetle is present in the whole country.

Calvia quatuordecimguttata (Linnaeus, 1758)

New records: Fužine, 26.5.2004, leg. Koren; Učka, Vojak, 6.6.2009, leg. Koren; Šarengrad, 15.5.2010, leg. Koren; Zagreb, Rudeš, 7.5.2008, leg. Koren; Zagreb, Sava, SD Stjepan Radić, 29.4.2007, leg. Koren; Zagreb, Savska Opatovina, 28.5.2010, leg. Koren; Zagreb, Vugrovec, 24.5.2009, leg. Zadravec.

Remarks: Until now recorded only from a few locations: Paukovac, Trakošćan, Varaždin, Zagorje-Kamenica, Varaždin breg, Dugi Vrh, Zelina (KOŠČEC, 1975). According to SCHLOSSER (1879) it is present in the whole country but he gave no precise locations.

Coccinella (Coccinella) magnifica L. Redtenbacher, 1843

New records: Paklenica, Veliki Štirovac, 1.6.2009, leg. Zadravec.

Remarks: Only SCHLOSSER (1879) lists this species for the fauna of Croatia, remarking that it is present on the Adriatic coast and Dalmatia, but lists also two records from the continental part of the country, Kalnik and Varaždinske Toplice (Fig. 1).

Coccinella (Coccinella) quinquepunctata Linnaeus, 1758

New records: Neretva, 25.6.2008, leg. Koren; Vela Traba, 23.7.2007, leg. Koren.

Remarks: SCHLOSSER (1879) writes that this species is present in "Croatia and Slavonia". The only precise record was from Varaždin (KOŠČEC, 1975).

Coccinella (Coccinella) septempunctata Linnaeus, 1758

New records: Manastir Krupa, 1.7.2010, leg. Rojko; Begovo Razdolje, Višnjevica, 4.8.2010, leg. Koren; Pond at foothills of Poštak Mountain, 1.7.2010, leg. Koren; Vela Traba, 25.9.2006, leg. Koren; Zagreb, Vugrovec, 5.7.2009, leg. Zadravec; Zagreb, Sava, SD Stjepan Radić, 29.4.2007, leg. Koren; Zarečki krov, Pazin, 20.4.2007, leg. Koren; Zrmanja spring, 1.7.2010, leg. Koren; Zrmanja village, 1.7.2010, leg. Koren; Paklenica, Veliki Štirovac, 1.6.2010, leg. Zadravec; Zagreb, Savska Opatovina, 3.4.2010, leg. Zadravec; Zagreb, Vugrovec, 24.5.2009, leg. Zadravec; Žut island, 14.5.2009, leg. Koren.

Remarks: One of the commonest ladybirds in Croatia. Present in the whole country.



Figure 1. Records of *Coccinella magnifica* from Croatia (UTM grid map 10x10 km): ● Literature records; ▲ New record.

Coccinella (Spilota) undecimpunctata (Linnaeus, 1758)

New records: Čikola, 20.5.2010, leg. Koren.

Remarks: Euryphagous. Found only in the Mediterranean part of the country. Until now recorded only from Cres, Brusje, Unije, Solin, Hvar, Split, Zadar, (NOVAK, 1952), Stobreč (NOVAK, 1964) and Trogir (KOŠČEC, 1975).

Harmonia quadripunctata (Pontoppidan, 1763)

New records: Dobarnica river, Zrmanja, 1.7.2010, leg. Koren; Pazin, 18.7.2008, leg. Koren; Zagreb, Maksimir, 17.6.2007, leg. Koren; Zrmanja village, 2.7.2010, leg. Rojko; Žut island, 14.5.2009, leg. Koren.

Remarks: A similar species to the invasive *H. axyridis*. This beetle is moderately common in Croatia, but most records originate from the Mediterranean part of the country.

Hippodamia (Hippodamia) variegata (Goeze, 1777)

New records: Beram, 30.8.2007, leg. Koren; Cerna, 26.4.2008, leg. Koren; Klimen, 27.4.2010, leg. Koren; Pula, 24.5.2007, leg. Koren; Zagreb, Rudeš, 2.6.2007, leg. Koren; Vugrovec, Knežine, 17.4.2010, leg. Zadravec.

Remarks: This very variably patterned species feeds mainly on aphids. It is common in the whole country.

Hippodamia (Hemisphaerica) tredecimpunctata (Linnaeus, 1758)

New records: Zagreb, Rudeš, 5.6.2007, leg. Koren; Zagreb, Sava, SD Stjepan Radić, 10.5.2008, leg. Koren.

Ceratomegilla undecimnotata (Schneider, 1792)

New records: Banjol, Rab, 21.7.2010, leg. Koren.

Remarks: Moderately common. Most records originate from the Mediterranean area.

Oenopia conglobata (Linnaeus, 1758)

New records: Klimen, 27.4.2010, leg. Koren; Paklenica, Mala Močila, 4.5.2008, leg. Koren.

Remarks: Common in the whole country. Feeds on aphids.

Oenopia lyncea (Olivier, 1808)

New records: Sunger, 10.6.2009, leg. Koren; Zagreb, Jezerska street, 27.5.2009, leg. Koren.

Remarks: Moderately uncommon in the Mediterranean area (NOVAK, 1952).

Coccinula quatuordecimpustulata (Linnaeus, 1758)

New records: Beram, 30.8.2007, leg. Koren; Draga, 18.4.2007, leg. Koren; Livno, 24.5.2008, leg. Koren; Pond at foothills of Poštak Mountain, 1.7.2010, leg. Koren; Učka Vela, 16.9.2007, leg. Koren; Vela Traba, 9.9.2009, leg. Koren; Žut island, 14.5.2009, leg. Koren.

Remarks: Quite common in the whole country.

Tribus: Tytthaspidini Crotch, 1874

Tytthaspis sedecimpunctata (Linnaeus, 1758)

New records: Beram, 30.8.2008, leg. Koren; Livno, 24.5.2008, leg. Koren; Zagreb, Sava, SD Stjepan Radić, 10.5.2008, leg. Koren; Zagreb, Savska Opatovina, 27.4.2010, leg. Zadravec; Zagreb, Vugrovec, Knežine, 20.5.2010, 18.7.2010, leg. Zadravec.

Remarks: Mycophagous. This beautiful species is present in the whole Croatia.

Subfamily: Epilachninae Mulsant, 1846

Tribus: Madaini Thomson, 1866

Cynegetis impunctata (Linnaeus, 1758)

New records: Snježnik, 10.6.2009, leg. Koren; Srbinjak, 23.4.2008, leg. Koren.

Remarks: Only general records for this herbivorous species exist, as Croatia and Slavonia (SCHLOSSER, 1879).

Subcoccinella vigintiquatuorpunctata (Linnaeus, 1758)

New records: Cerna, 26.4.2008, leg. Koren; Drenovci, 26.4.2008, leg. Koren; Gmoščica, 19.3.2010, leg. Koren; Karinsko Ždrilo, village Perice, 1.7.2010, leg. Koren; Lovinec, 24.5.2008, leg. Koren; Pond at foothills of Poštak Mountain, 1.7.2010, leg. Koren; Rokina spilja, Lika, 24.5.2008, leg. Koren; Snježnik, 10.6.2009, leg. Koren; Turopoljski lug, 14.4.2010, leg. Koren; Vela Traba, 21.4.2007, leg. Koren; Žut island, 15.5.2009, leg. Koren; Zagreb, Vugrovec 2, 24.4.2009, leg. Zdravec; Zavižan, Velebit, 2.6.2007, leg. Koren; Žut island, 14.5.2009, leg. Koren.

Remarks: Very common herbivorous species, present in the whole country.

Checklist of ladybirds of Croatia

After reviewing the available literature about ladybirds of Croatia, a checklist was created consisting of 78 species (Appendix 1). This differs from the number of 73 species given by JELOVČAN *et al.* (2007), and by the number of 62 species listed for Croatia in the Web portal Fauna Europea (CANEPARI, 2011). Unfortunately we were not able to check if all species are present in Croatian museum collections, and as such fully confirm if all listed species were correctly determined by entomologists who published those records. Two listed species are especially doubtful, *Hyperaspis hoffmanseggii* Gravenhorst, 1807 and *Scymnus rufipes* (Fabricius, 1798). Both species are distributed in the west Mediterranean, with the closest records from Italy (CANEPARI, 2011). The presence of both species will need to be confirmed for Croatia in the future.

Many records originate from papers published more than a century ago, and as such are not completely reliable, but because of the lack of recent papers, we had to consider them as well. Future collections of beetles, as well as checking the presence of all ladybird species in the museum collections will give a more precise checklist, and until then, this list needs to be taken as preliminary and probably incomplete. The authors are also aware that the possibility exists that not all literature was known to them, and so was not consulted, but this can also be corrected in future. We hope that this checklist will be useful to entomologists from Croatia and other countries, and will contribute to the knowledge of beetles of Croatia. Complete species records, distribution maps and discussions of the distribution of each species present in Croatia exceed the limits of this paper, and will be published separately in the near future. Also, some parts of Croatia have been well surveyed, while some are almost completely lacking any data about ladybirds (Fig. 2).

We would also want to encourage other entomologists, professional or amateur, to publish their data regarding different Coleoptera families, so we can one day have a complete picture about the fauna of Croatia.

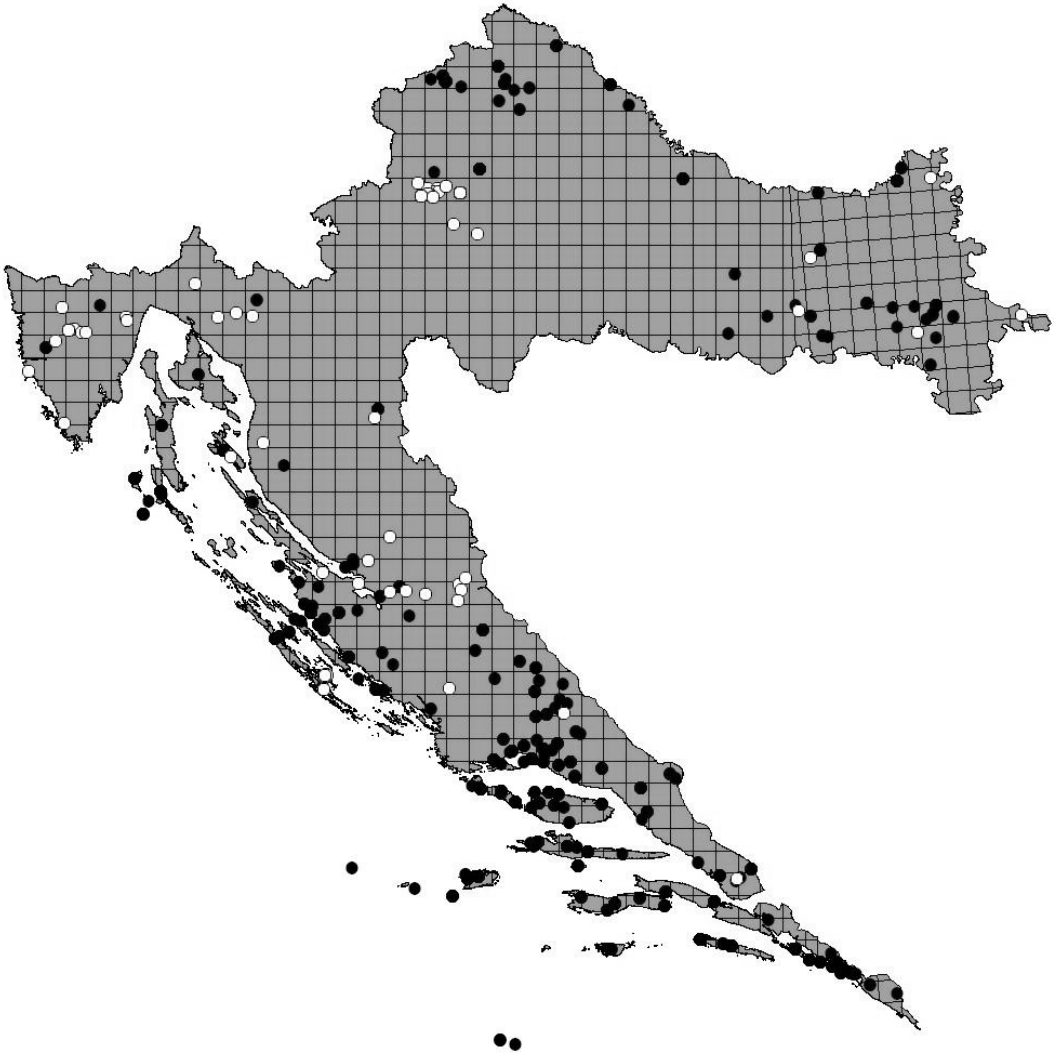


Figure 2. All records of ladybirds (Coccinellidae) from Croatia (UTM grid map 10x10 km):
● Literature records, ○ New records.

Acknowledgments

We are deeply grateful to an anonymous referee and to Otto MERKL for useful corrections of and suggestions for the manuscript.

References

- CANEPARI, C., 2011. Fauna Europaea: Coccinellidae. In: Audisio, P., (ed.) (2011) Fauna Europaea: Coleoptera, Lady-birds. Fauna Europaea version 2.3, <http://www.faunaeur.org>. Accessed: 12.1.2012.
- DURBEŠIĆ, P., VUJČIĆ-KARLO, S., GJURAŠIN, B. & KRČMAR, S., 1995. Research on the beetle fauna (Coleoptera) of the island Mljet. *Ekološke monografije*, 6: 355–377. [in Croatian]
- FEKETE, ZS. & MERKL, O., 2010. Coccinellidae housed in the Mátra Museum, Hungary, with a national checklist of the family (Coleoptera). *Folia Historico Naturalia Musei Matraensis*, 34: 119–130.
- FÜRSCH, H., 1967: 62. Familie: Coccinellidae (Marienkäfer). In: Freude, H., Harde, K.W. & Lohse, G.A. (eds): *Die Käfer Mitteleuropas*, Band 7. Clavicornia. Goecke & Evers, Krefeld, pp. 227–278.
- GANGLBAUER, L., 1904. Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französischen und italienischen Alpengebietes. Vierter Band, erste Hälfte. Dermestidae, Byrrhidae, Nosodendridae, Georyssidae, Dryopidae, Heteroceridae, Hydrophilidae. Wien: Karl Gerold's Sohn, 286 pp.
- HODEK, I., 2012. Diapause/Dormancy. In: Hodek, I., van Emden, H.F. & Honěk, A. (eds): *Ecology and Behaviour of the Ladybird Beetles (Coccinellidae)*, Blackwell Publishing Ltd., Chichester, UK, pp. 275–342.
- IABLOKOFF-KHNZORIAN, S.M., 1982. *Les Coccinelles. Coléoptères-Coccinellidae*. Société Nouvelles Éditions Boubée, Paris, 568 pp.
- IPERTI, G., 1999. Biodiversity of predaceous Coccinellidae in relation to bioindication and economic importance. *Agriculture, Ecosystems & Environment*, 74: 323–342.
- JELOVČAN, S., IGRC BARČIĆ, J. & GOTLIN ČULJAK, T., 2007. Newly determined ladybugs species (Coleoptera: Coccinellidae) in Croatia, *Entomologia Croatica*, 11(1/2): 69–74.
- KOCH, R. L., 2003. The multicolored Asian lady beetle, *Harmonia axyridis*: a review of its biology, uses in biological control, and non-target impacts. *Journal of Insect Science*, 3: 1–16.
- KOČA, G., 1906. Checklist of Beetles (Coleoptera) of Vinkovci region. *Journal of the Croatian Natural Science Society, Hrvatska zemaljska tiskara, Zagreb*, 17: 119–213. [In Croatian]
- KOŠČEC, R., 1975. Collection of Coccinellidae of the Entomology Department of the City Museum of Varaždin. *Varaždin City Museum Yearbook, Varaždin*, pp.: 187–199. [in Croatian]
- LIEBMANN, W., 1955. Käferfunde aus Mitteleuropa einschliesslich der österreichischen Alpen. *Arnstadt*, 165 pp.
- MARCUZZI, G., 1985. Contribution to the knowledge of the Coleoptera of Dalmatia. *JAZU, Zagreb*, 424: 208–210. [in Croatian]
- MIČETIĆ STANKOVIĆ, V., KOREN, T. & STANKOVIĆ, I., 2011. The Harlequin ladybird continues to invade southeastern Europe. *Biological Invasions*, 13(8): 1711–1716.
- MÜLLER, G., 1901. Coccinellidae Dalmatie. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien*, 51: 511–522.
- NOVAK, P., 1925. Useful and harmful Ladybugs. *Poljodjelski vjesnik*, 7: 1–25. [in Croatian]
- NOVAK, P., 1952. Beetles of the Adriatic coast, *JAZU, Zagreb*, 175–194. [in Croatian]
- NOVAK, P., 1964. Coleoptera of Dalmatia. *Atti del Museo civico di storia naturale*, 26(3): 53–132.
- ROY, H.E., BROWN, P., & MAJERUS, M.E.N., 2006. *Harmonia axyridis*: a successful biocontrol agent or an invasive threat? In: Eilenberg, J. & Hokkanen, H. (eds): *An ecological and societal approach to biological control*. Kluwer Academic Publishers, Dordrecht, pp.295–309.
- SCHLOSSER KLEKOVSKI, J., 1879. Beetle fauna of the Kingdom of Croatia-Slavonia. Second volume. *JAZU, Zagreb*, 963 pp. [in Croatian]

- VANDENBERG, N.J., 2002. 93. Coccinellidae Latreille 1807. *In*: Arnett, R.H. jr., Thomas, M. C., Skelley, P.E. & Frank, J.H. (eds): *American Beetles 2, Polyphaga: Scarabaeoidea through Curculionoidea*. CRC Press, Boca Raton, London, New York, Washington, pp. 371–389.
- VUJČIĆ-KARLO, S., DURBEŠIĆ, P., GJURAŠIN, B. & KRČMAR S., 1996. Research on the beetle fauna (Coleoptera) of the Kornat archipelago and Murter Island. *Ekološke monografije*, 7: 219–227. [in Croatian]

ПРВИ ПОПИС БУБАМАРА (COLEOPTERA: COCCINELLIDAE) ХРВАТСКЕ СА НОВИМ ФАУНИСТИЧКИМ НАЛАЗИМА

ТОНИ КОРЕН, ДИНА ХЛАВАТИ, ИВАНА РОЈКО и МЛАДЕН ЗАДРАВЕЦ

Извод

Фауна бубамара Хрватске још увек је недовољно позната. Дати су нови подаци о раширености бубамара прикупљени током протекле четири године. Презентиран је први попис врста бубамара Хрватске који се састоји од 78 врста.

Received June 6th, 2012
Accepted December 13th, 2012

Appendix 1

Checklist of ladybirds of Croatia

Family Coccinellidae Latreille, 1807

Subfamily: Chilocorinae Mulsant, 1846

Tribus: Chilocorini Mulsant, 1846

Genus: *Exochomus* L. Redtenbacher, 1843

1. *E. quadripustulatus* (Linnaeus, 1758)

Genus: *Chilocorus* Leach, 1815

2. *C. bipustulatus* (Linnaeus, 1758)

3. *C. renipustulatus* (Scriba, 1791)

Genus: *Parexochomus* Barovskij, 1922

4. *P. nigromaculatus* (Goeze, 1777)

Subfamily: Coccidulinae Mulsant, 1846

Tribus: Coccidulini Mulsant, 1846

Genus: *Coccidula* Kugelann, 1798

5. *C. rufa* (Herbst, 1783)

6. *C. scutellata* (Herbst, 1783)

Genus: *Lindorus* Casey, 1899

7. *L. lophanthae* (Blaisdell, 1892)

Genus: *Rhyzobius* Stephens, 1829

8. *R. chrysomeloides* (Herbst, 1792)

9. *R. litura* (Fabricius, 1787)

Subfamily: Coccinellinae Latreille, 1807

Tribus: Coccinellini Latreille, 1807

Genus: *Adalia* Mulsant, 1846

Subgenus: *Adalia* Mulsant, 1846

10. *A. bipunctata* (Linnaeus, 1758)

11. *A. decempunctata* (Linnaeus, 1758)

Genus: *Anatis* Mulsant, 1846

12. *A. ocellata* (Linnaeus, 1758)

Genus: *Aphidecta* Weise, 1893

13. *A. obliterata* (Linnaeus, 1758)

Genus: *Calvia* Mulsant, 1850

14. *C. decemguttata* (Linnaeus, 1758)

15. *C. quatuordecimguttata* (Linnaeus, 1758)

Genus: *Ceratomegilla* Crotch, 1873

Subgenus: *Adaliopsis* Capra, 1926

16. *C. alpina* (Villa & Villa, 1835)

Subgenus: *Ceratomegilla* Crotch, 1873

17. *C. notata* (Laicharting, 1781)

18. *C. undecimnotata* (Schneider, 1792)

Genus: *Coccinella* Linnaeus, 1758

Subgenus: *Coccinella* Linnaeus, 1758

19. *C. magnifica* L. Redtenbacher, 1843

20. *C. quinquepunctata* Linnaeus, 1758

21. *C. septempunctata* Linnaeus, 1758

Subgenus: *Spilota* Billberg, 1820

22. *C. undecimpunctata* Linnaeus, 1758

Genus: *Harmonia* Mulsant, 1850

23. *H. axyridis* (Pallas, 1773)

24. *H. quadripunctata* (Pontoppidan, 1763)

Genus: *Hippodamia* Chevrolat, 1837

Subgenus: *Hippodamia* Chevrolat, 1837

25. *H. variegata* (Goeze, 1777)

Subgenus: *Hemisphaerica* Hope, 1840

26. *H. septemmaculata* (DeGeer, 1775)

27. *H. tredecimpunctata* (Linnaeus, 1758)

Genus: *Myrrha* Mulsant, 1846

Subgenus: *Myrrha* Mulsant, 1846

28. *M. octodecimguttata* (Linnaeus, 1758)

Genus: *Myzia* Mulsant, 1846

29. *M. oblongoguttata* (Linnaeus, 1758)

Genus: *Oenopia* Mulsant, 1850

30. *O. conglobata* (Linnaeus, 1758)

31. *O. lyncea* (Olivier, 1808)

Genus: *Propylea* Mulsant, 1846

32. *P. quatuordecimpunctata* (Linnaeus, 1758)

Genus: *Sospita* Mulsant, 1846

33. *S. vigintiguttata* (Linnaeus, 1758)

Tribus: Halyziini Mulsant, 1846

Genus: *Halyzia* Mulsant, 1846

34. *H. sedecimguttata* (Linnaeus, 1758)

Genus: *Psyllobora* Chevrolat, 1836

Subgenus: *Thea* Mulsant, 1846

35. *P. vigintiduopunctata* (Linnaeus, 1758)

Genus: *Vibidia* Mulsant, 1846

36. *V. duodecimguttata* (Poda, 1761)

Tribus: Tytthaspididini Crotch, 1874

Genus: *Anisosticta* Dejean, 1833

37. *A. novemdecimpunctata* (Linnaeus, 1758)

Genus: *Coccinula* Dobzhansky, 1925

38. *C. quatuordecimpustulata* (Linnaeus, 1758)

39. *C. sinuatomarginata* (Faldermann, 1837)

Genus: *Tytthaspis* Crotch, 1874

40. *T. sedecimpunctata* (Linnaeus, 1760)

Subfamily: Epilachninae Mulsant, 1846

Tribus: Epilachnini Mulsant, 1846

Genus: *Henosepilachna* Li, 1961

41. *H. argus* (Geoffroy, 1785)

42. *H. elaterii* (Rossi, 1794)

Tribus: Cynegetini Thomson, 1866

Genus: *Cynegetis* Chevrolat, 1836

43. *C. impunctata* (Linnaeus, 1767)

Genus: *Subcoccinella* Huber, 1841

44. *S. vigintiquatuorpunctata* (Linnaeus, 1758)

Subfamily: Ortaliinae Mulsant, 1850

Genus: *Novius* Mulsant, 1850

45. *N. cruentatus* (Mulsant, 1850)

Genus: *Rodolia* Mulsant, 1850

46. *R. cardinalis* (Mulsant, 1850)

Subfamily: Scymninae Mulsant, 1846

Tribus: Diomini Gordon, 1999

Genus: *Diomus* Mulsant, 1850

47. *D. rubidus* (Motschulsky, 1837)

Tribus: Hyperaspidini Mulsant, 1846

Genus: *Hyperaspis* Chevrolat, 1837

48. *H. campestris* (Herbst, 1783)

49. *H. hoffmanseggi* Gravenhorst, 1807*

50. *H. reppensis* (Herbst, 1783)

Tribus: Platynaspidini Mulsant, 1846

Genus: *Platynaspis* L. Redtenbacher, 1843

51. *P. luteorubra* (Goeze, 1777)

Tribus: Scymnini Mulsant, 1846

Genus: *Clitostethus* Weise, 1885

52. *C. arcuatus* (Rossi, 1794)

Genus: *Nephus* Mulsant, 1846

Subgenus: *Bipunctatus* Fürsch, 1987

53. *N. bipunctatus* (Kugelann, 1794)

Subgenus: *Nephus* Mulsant, 1846

54. *N. ludyi* (Weise 1897)

55. *N. quadrimaculatus* (Herbst, 1783)

56. *N. redtenbacheri* (Mulsant, 1846)

Genus: *Scymniscus* Dobzhansky, 1928

57. *S. anomus* (Mulsant & Rey, 1852)

Genus: *Scymnus* Kugelann, 1794

Subgenus: *Mimopullus* Fürsch, 1987

58. *S. flagellisiphonatus* Fürsch, 1970

Subgenus: *Neopullus* Sasaji, 1971

59. *S. ater* Kugelann, 1794

60. *S. haemorrhoidalis* Herbst, 1797

61. *S. limbatus* Stephens, 1832

Subgenus: *Parapullus* Yang, 1978

62. *S. abietis* (Paykull, 1798)

Subgenus: *Pullus* Mulsant, 1846

63. *S. auritus* Thunberg, 1795

64. *S. ferrugatus* (Moll, 1785)

65. *S. fraxini* Mulsant, 1850

66. *S. impexus* Mulsant, 1850

67. *S. oertzeni* Weise, 1886 (= *muelleri* Penecke, 1907)

68. *S. subvillosus* (Goeze, 1777)

69. *S. suturalis* Thunberg, 1795

Subgenus: *Scymnus* Kugelann, 1794

70. *S. apetzi* Mulsant, 1846

71. *S. frontalis* (Fabricius, 1787)

72. *S. interruptus* (Goeze, 1777)

73. *S. marginalis* (Rossi, 1794)

74. *S. nigrinus* Kugelann, 1794

75. *S. rubromaculatus* (Goeze, 1777)

76. *S. rufipes* (Fabricius, 1798)*

Tribus: Stethorini Dobzhansky, 1924

Genus: *Stethorus* Weise, 1885

77. *S. gilvifrons* (Mulsant, 1850)

78. *S. pusillus* (Herbst, 1797)

* Western Mediterranean species for which the occurrence in Croatia is doubtful and need to be proven in the future.